

REMARKS/ARGUMENTS

The Examiner's Office Action and the cited references have been given careful consideration. Following such consideration, claims 2-10 have been amended. Claim 1 has been cancelled. It is respectfully requested that the Examiner reconsider the claims in their present form, together with the following comments, and allow the application.

Enclosed with the Response is a copy of the abstract for the patent application. It is respectfully submitted that the Examiner accept the abstract in its present form.

Enclosed with this Response is a copy of an amendment to the patent application. The section heading "Related Applications" and the phrase "This application is a National Stage entry of International Application No. PCT/FI03/00630, filed August 28, 2003, the entire specification, claims and drawings of which are incorporated herewith by reference." have been incorporated into page 1 of the specification. It is respectfully requested that the Examiner accept the amendment in its present form.

Applicant has reviewed the specification and is aware of no errors that need to be corrected.

The Examiner has rejected claims 1-3 and 6-8 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Appropriate corrections have been made by amendment. Accordingly, it is respectfully requested that the Examiner now withdraw the 35 U.S.C. 112, second paragraph rejection.

Claims 2, 3, 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all the limitations of the base claim and any intervening claims. Therefore, claim 2 has been amended to include the limitations of claim 1 and claim 7 has been amended to include the limitations of claim 6. It is respectfully submitted that claims 2, 3, 7 and 8 are now allowable.

Claims 4, 5, 9 and 10 are objected under 37 C.F.R. 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. Please note that appropriate corrections were made to claims 4, 5, 9 and 10 in a Preliminary Amendment dated January 26, 2005 (copy attached). The current claims include these

corrections. It is respectfully requested that the Examiner now accept claims 4, 5, 9 and 10 in their present form.

Claims 4, 5 depend from claim 2 and claims 9, 10 depend from claim 7. It is respectfully submitted that claims 4, 5, 9 and 10 are allowable for at least the same reasons stated above for claims 2 and 7.

The present invention relates to a method and device for the production of purified steam. A steam phase and a water phase are produced in an evaporation unit of the device from a feed water. The steam phase and the water phase exit the evaporation unit and enter a separation unit of the device.

According to the present invention, the separation unit includes an outer shell and an inner shell. The inner shell is disposed in an inner cavity of the outer shell. A lower edge of the inner shell and an upper edge of the inner shell each sealingly attaches to the outer shell such that a space is defined therebetween. As shown in FIG. 2, openings 27 are formed in an upper end of the inner shell. In this respect, the only fluid communication between the space and the remaining portion of the inner cavity of the outer shell is through openings 27. A first exit tube 10 fluidly connects to the space between the inner shell and the outer shell.

During operation of the present invention, the water phase from the evaporation unit collects in a bottom of the separation unit (item 8 in FIG. 2). The steam phase makes an 180° turn and flows upward through a spiraling rotational path. Water droplets in the steam phase are forced to the outer portion of the path and flow through openings 27 into space 28. The water droplets collect in space 28 to form a reject liquid. The reject liquid is removed from space 28 through first exit tube 10.

In this respect, the present invention removes a reject stream from a steam phase and maintains the reject stream fluidly isolated from a water phase in the separation unit.

Claim 6 has been amended to define "an inner shell disposed in the inner cavity of the outer shell, the inner shell sealingly attaches to the outer shell along a lower edge and along an upper edge of the inner shell to define a space between the inner shell and the outer shell, the space fluidly communicating with a remaining portion of the inner cavity through an opening formed in the inner shell."

The Examiner has rejected claims 1 and 6 under 35 U.S.C. 103, as being obvious in view of the combined teachings of Saari et al. (U.S. Patent No. US 3,875,017), Salmisuo (WO 02/24299), Lustenader et al. (US 3,099,607) and Silvey (U.S. Patent No. 4,698,138).

Saari et al. discloses a multi-stage thin film evaporator having a helical vapor flow path. The evaporator includes an inner shell, i.e., helical flow duct 80, and an outer shell, i.e., jacket tube 79. As seen in FIGS. 4 and 5, duct 80 is attached to tube 79 only along an upper edge of duct 80. In this respect, space 82, defined between duct 80 and tube 79, fluidly communicates with a remaining portion of the internal cavity in tube 79 at a lower end of duct 80. Saari et al. does not teach, suggest or show an outer shell and an inner shell wherein the inner shell sealingly attaches to the outer shell along an upper edge and along a lower edge of the inner shell to define a space therebetween, as defined in claim 6.

Salmisuo et al. discloses an apparatus similar to Saari et al. As seen in FIG. 2, a lower edge of an inner shell 17 is not connected to an outer shell 14. Salmisuo et al. does not teach, suggest or show an outer shell and an inner shell wherein the inner shell sealingly attaches to the outer shell along an upper edge and along a lower edge of the inner shell to define a space therebetween, as defined in claim 6.

Lustenader discloses a vapor recirculation distillation process and apparatus. As shown in FIGS. 1 and 7, a collected liquid 15 is circulated thru line 18 to feed stream lines 16, 17. Lustenader does not teach, suggest or show an outer shell and an inner shell wherein the inner shell sealingly attaches to the outer shell along an upper edge and along a lower edge of the inner shell to define a space therebetween, as defined in claim 6.

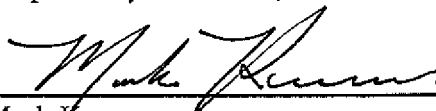
The Examiner relies on Silvey to teach continuously removing from the process the separated droplets as a reject stream. Silvey does not teach, suggest or show an outer shell and an inner shell wherein the inner shell sealingly attaches to the outer shell along an upper edge and along a lower edge of the inner shell to define a space therebetween, as defined in claim 6.

The cited references made of record and not relied upon have also been reviewed. It is respectfully submitted that none of these additional references discloses or renders obvious the applicants' invention as defined by claim 6.

Please note that an Information Disclosure Statement (IDS) accompanies this Response. The Examiner is respectfully requested to consider the reference(s) cited therein.

If there are any fees necessitated by the foregoing communication, please charge such fees to our Deposit Account No. 50-0537, referencing our Docket No. ST9032PCT(US).

Respectfully submitted,



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